

DEPARTMENT OF THE INTERIOR, CANADA

Hon. W. J. Ridd, Minister; W. W. Coss, Deputy Minister

FORESTRY BRANCH—BULLETIN No. 55

H. H. Campbell, Director of Forestry

FOREST PRODUCTS OF CANADA

1914

POLES AND CROSS-TIES

EDITED BY

R. G. LEWIS, B. Sc. F.

ASSISTED BY W. GUY H. BOYCE

OTTAWA
GOVERNMENT PRINTING BUREAU
1915

DEPARTMENT OF THE INTERIOR, CANADA

Hon. W. J. ROCHE, Minister; W. W. CORY, Deputy Minister

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R. H. CAMPBELL, Director of Forestry

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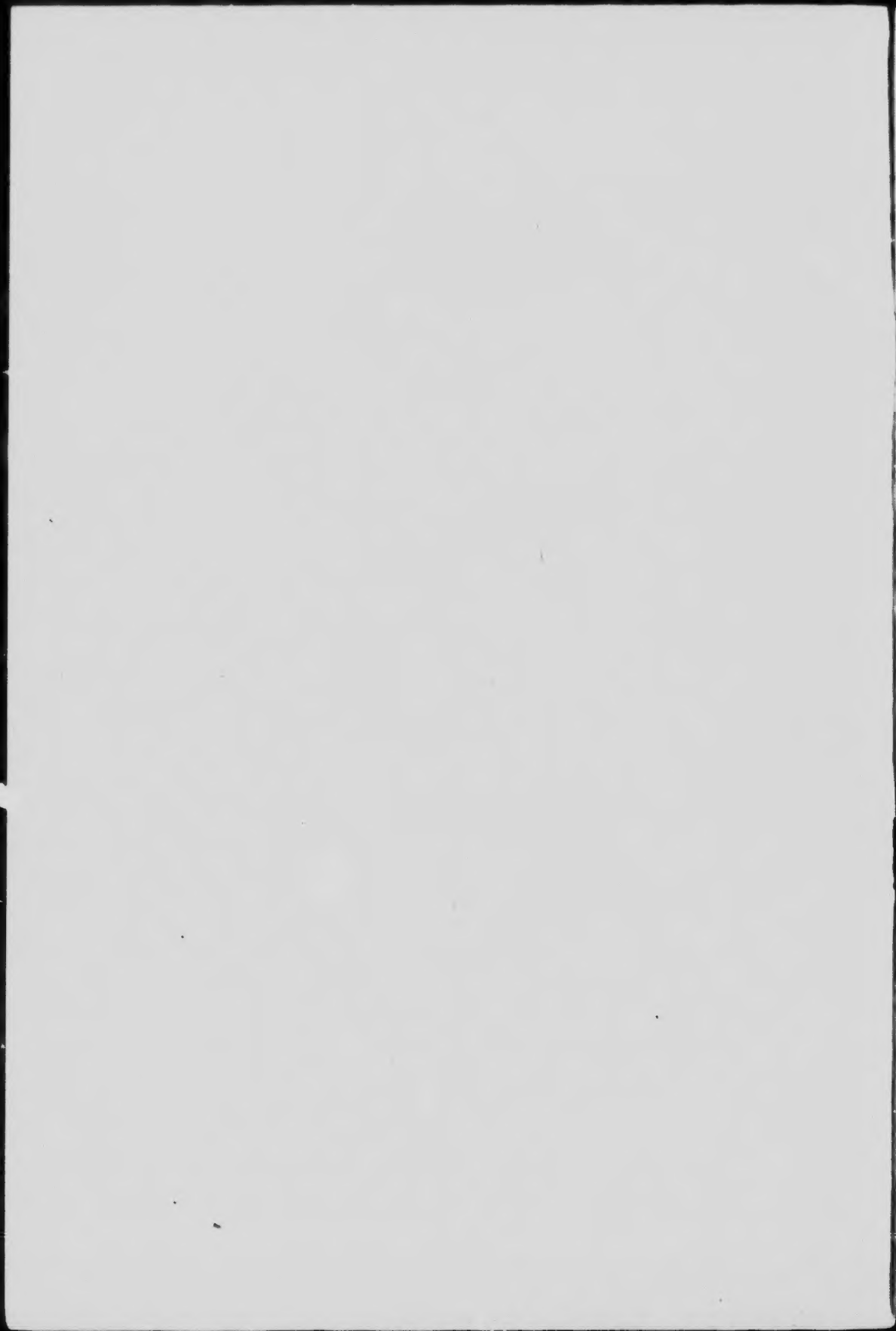
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LETTER OF TRANSMITTAL.

FORESTRY BRANCH,

DEPARTMENT OF THE INTERIOR,

OTTAWA, JUNE 5, 1915.

SIR,—I beg to transmit herewith reports on the poles purchased and on the cross-ties purchased in the Dominion during the calendar year 1914, and to recommend their publication as Bulletin No. 55 of this Branch.

The first report, namely, that on the poles purchased, contains an account of the poles purchased during the year above cited, both in the aggregate and also separately by (1) the steam railways and telephone and telegraph companies, and (2) by the electric railway, power and light companies. It also groups poles used according to their length. A diagram, comparative for the years 1913 and 1914, showing the number of poles purchased, according to kinds of wood, has been added, and also a diagram showing the comparative total purchases of poles for the years 1910 to 1914 inclusive.

The latter of the two reports, namely, that on the cross-ties purchased, contains an account of the cross-ties purchased during the same year by the different railway companies of Canada, steam and electric, both jointly and separately. Diagrams similar to those for poles have also been added.

Your obedient servant,

R. H. CAMPBELL,

Director of Forestry.

W. W. CORY, Esq., M.G.,

Deputy Minister of the Interior,
Ottawa.

TABLE OF CONTENTS.

Poles Purchased—	PAGE.
Diagram: Poles Purchased in the Past Five Years 1910-4.....	6
Poles Purchased, 1913 and 1914, by Kinds of Wood and Chief Uses (Table 1).....	7
Poles Purchased, 1913 and 1914, by Length-classes and Kinds of Wood (Table 2).....	9
Diagram: Number of Poles Purchased, 1913 and 1914.....	10
 Cross-ties Purchased—	
Cross-ties Purchased, 1913 and 1914, by Kinds of Wood (Table 3)....	11
Diagram: Cross-ties Purchased in 1913 and 1914.....	12
Cross-ties Purchased, 1913 and 1914, by Steam Railways by Kinds of Wood (Table 4).....	13
Diagram: Cross-ties Purchased in the Past Five Years 1910-4....	14
Cross-ties Purchased, 1913 and 1914, by Electric Railways by Kinds of Wood (Table 5).....	15

WOODEN POLES PURCHASED IN CANADA DURING
THE LAST FIVE YEARS

1910-1914



Poles Purchased in 1914

The statistics in this bulletin are based on reports received by the Forestry Branch from 381 firms purchasing poles in Canada in 1914. These firms consisted of 209 telephone companies, three telegraph companies and seventeen steam railway companies; forming one group and 132 electric light and power concerns, and twenty electric railroads forming another.

TABLE 1.

POLES PURCHASED, 1913 AND 1914, BY KINDS OF WOOD AND CHIEF USES:—
Number, Total Value, Average Value and Per cent Distribution.

Kind of Wood.	1913				1914			
	Number.	Value.	Av. Value	Per Cent.	Number.	Value.	Av. Value	Per Cent.

TOTAL OF ALL USES.

		\$	\$ ct.			\$	\$ ct.	
Total	534,592	1,188,331	2.22	100.0	283,184	666,262	2.33	100.0
Eastern Cedar.....	264,267	525,853	1.99	59.4	241,633	509,503	2.11	85.3
Western Cedar.....	145,569	488,138	3.35	27.2	36,356	138,508	3.81	12.9
Spruce.....	5,228	6,046	1.16	1.0	2,638	6,740	2.55	0.9
Tamarack.....	115,517	155,682	1.35	21.6	1,833	2,107	1.15	0.6
Oak.....					213	1,422	6.68	0.1
Douglas Fir.....					188	1,553	8.26	0.1
Hard Pine.....					126	252	2.00	*
Jack Pine.....	1,450	1,299	0.90	0.3	100	100	1.00	*
Chestnut.....	167	94	0.56		97	77	0.79	*
Balsam Fir.....	1,437	1,841	1.28	0.3				
White Pine.....	682	8,095	11.87	0.1				
Cypress.....	128	1,056	8.25	*				
Hemlock.....	92	32	0.35	*				
Western Larch.....	39	163	4.18	*				
Ash.....	16	32	2.00	*				

ELECTRIC RAILWAY, POWER AND LIGHT COMPANIES.

Total	65,071	355,072	5.45	100.0	97,073	303,103	3.12	100.0
Eastern Cedar.....	33,907	143,196	4.22	52.1	84,279	211,307	2.51	86.8
Western Cedar.....	29,855	205,749	6.89	45.9	12,290	90,016	7.32	12.7
Spruce.....	835	1,896	2.27	1.3	286	192	0.67	0.3
Douglas Fir.....					155	1,485	9.58	0.1
Tamarack.....	305	3,007	9.89	0.5	63	103	1.63	0.1
Cypress.....	128	1,056	8.25	0.2				
Western Larch.....	39	163	4.18	*				
Hemlock.....	2	5	2.50	*				

STEAM RAILWAYS, TELEPHONE AND TELEGRAPH COMPANIES.

Total	469,521	833,259	1.77	100.0	186,111	357,159	1.92	100.0
Eastern Cedar	230,360	382,657	1.66	49.1	157,354	298,196	1.90	84.5
Western Cedar	115,714	282,389	2.44	24.6	24,066	48,492	2.01	12.9
Spruce	4,393	4,150	0.94	0.9	2,352	6,548	2.78	1.3
Tamarack	115,212	152,675	1.33	24.5	1,770	2,004	1.13	0.9
Oak					213	1,422	6.68	0.1
Hard Pine					126	252	2.00	0.1
Jack Pine	1,450	1,299	0.90	0.3	100	100	1.00	0.1
Chestnut	167	94	0.56	*	97	77	0.79	0.1
Douglas Fir					33	68	2.06	*
Balsam Fir	1,437	1,841	1.28	0.3				
White Pine	682	8,095	11.87	0.1				
Hemlock	90	27	0.30	*				
Ash	16	32	2.00	*				

*Less than one-tenth of 1 per cent.

That the market for wooden poles in Canada is very irregular is demonstrated by the diagram inserted in this bulletin, showing the purchases of this commodity in the last five years.

The activity of the different railways in extending their lines is one factor that affects these figures. Some of the Provincial Governments which control telephone companies purchase large stocks of poles and furnish these to small independent telephone lines. Their purchases are of necessity irregular, and have fallen off considerably in the last two or three years, sufficient telephone accommodation having been established.

The purchases in 1914 showed a decrease of 47 per cent from those of 1913, while the average price paid increased by 11 cents.

Only nine kinds of wood were reported compared to twelve in 1913. Poles of oak, hard pine, and Douglas fir were reported in 1914, but not in 1913. Decreases occurred with every other kind of wood, the greatest being in the case of tamarack, which amounted to 98.4 per cent of the figure for 1913.

Eastern white cedar poles headed the list, their number forming over 85 per cent of the total. Western red cedar from British Columbia and the Western States came second on the list, with over 12 per cent of the total. Poles of these two woods have formed the greater part of the purchases in past years in spite of the increasing scarcity of good material, especially in the case of the eastern tree.

The steam railway, telephone and telegraph group of purchasers bought 65.7 per cent of the poles as compared to 87.8 per cent in 1913. Their purchases in 1914 showed a decrease of 60.4 per cent from those of 1913. The oak, hard pine, jack pine, and chestnut poles were all purchased by these companies. These companies reported the purchase of 442 treated poles.

The electric railway, power and light companies bought 34.3 per cent of the poles as compared to 12.2 per cent in 1913. Their purchases showed a decided increase (49.2 per cent) over 1913.

TABLE 2.

POLES PURCHASED, 1914, BY LENGTH-CLASSES AND KINDS OF WOOD:—

Total Value, Average Value and Per cent Distribution.

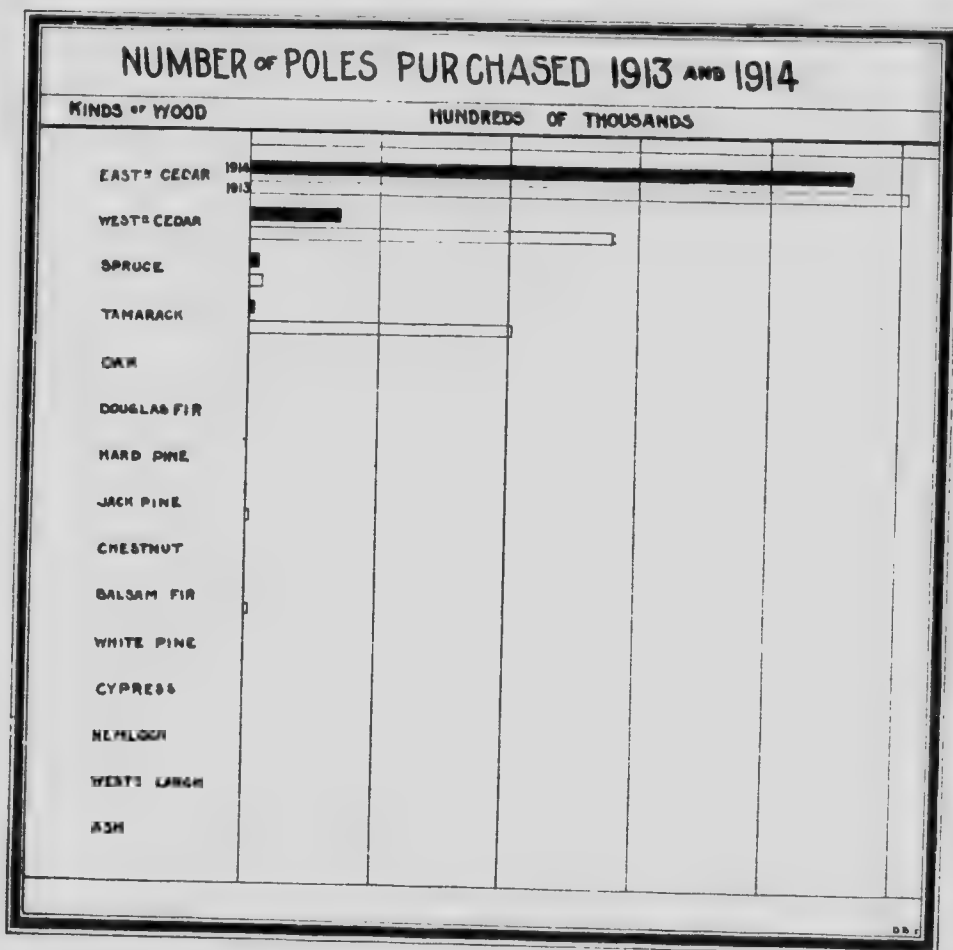
Kind of Wood.	Number	Value.	Average Value.	Per Cent.	Number	Value.	Average Value.	Per cent.
	Total—All Length-classes.				20 to 25 feet (57.1 per cent.)			
Total	283,184	660,262	2.33	100.0	161,544	203,460	1.26	100.0
Eastern Cedar	241,633	509,503	2.11	85.3	140,444	169,935	1.21	86.9
Western Cedar	36,356	138,508	3.81	12.8	17,839	30,266	1.70	11.0
Spruce	2,638	6,740	2.55	0.9	1,157	920	0.80	0.7
Tamarack	1,833	2,107	1.15	0.6	1,812	2,038	1.12	1.1
Oak	213	1,422	6.68	0.1	20	12	0.60	*
Douglas Fir	188	1,553	8.26	0.1	77	122	1.58	*
Hard Pine	126	252	2.00	*	100	100	1.00	0.1
Jack Pine	100	100	1.00	*	95	67	0.71	0.1
Chestnut	97	77	0.79	*				
26 to 30 feet (23.6 per cent.)					31 to 35 feet (8.4 per cent.)			
Total	66,689	139,988	2.10	100.0	23,917	105,003	4.39	100.0
Eastern Cedar	60,508	122,440	2.02	90.7	18,952	84,081	4.44	79.2
Western Cedar	5,463	15,442	2.83	8.2	4,474	18,917	4.23	18.7
Spruce	707	2,079	2.94	1.1	376	1,308	3.48	1.6
Tamarack	9	20	2.22	*	1	3	3.00	*
Oak					90	630	7.00	0.4
Douglas Fir	2	7	3.50	*	24	64	2.67	0.1
36 to 40 feet (6.5 per cent.)					41 feet and over (4.4 per cent.)			
Total	18,582	110,708	5.96	100.0	12,452	101,103	8.12	100.0
Eastern Cedar	14,035	77,185	5.50	75.5	7,694	55,862	7.26	61.8
Western Cedar	4,271	32,029	7.50	23.0	4,309	41,854	9.71	34.6
Spruce	186	863	4.64	1.0	212	1,570	7.41	1.7
Oak	82	615	7.50	0.4	21	165	7.86	0.2
Tamarack	8	16	2.00	*	3	30	10.00	*
Douglas Fir					85	1,360	16.00	0.7
Hard Pine					126	252	2.00	1.0
Chestnut					2	10	5.00	*

*Less than one-tenth of 1 per cent.

The prices in the above tables are based on the cost at the point of purchase. Arbitrary factors, as farmers cutting poles for local lines, low prices caused by lack of transportation facilities, high prices caused by long hauls and demand for particular lengths, make specific prices irregular. Only where poles are used in large numbers can the values be taken as representative.

Over half the poles purchased in Canada in 1914 were under 26 feet in length, the two cedar species forming 97.9 per cent of the total in this class. These two kinds of wood formed over 95 per cent in every length class recorded. Almost a quarter of the total number belonged to the next length class including poles from 26 to 30 feet in length.

The greater part of the white cedar, red cedar, spruce, tamarack, and chestnut poles and all the jack pine poles belonged to the 20-to 25-foot class. Oak poles were mostly from 31 to 35 feet in length. The greatest number of Douglas fir poles were over 41 feet in length, and all the imported hard pine poles were of this same class.



Cross-ties Purchased in 1914.

A total of 19,403,646 cross-ties, valued at \$8,664,914, were purchased during 1914 by Canadian railways for use in Canada. These companies consisted of forty-seven steam railways and thirty-one electric roads. Of this total, 1,447,576 ties were treated with preservatives to retard decay. This is about 7 per cent of the total, as compared to 10 per cent in 1913.

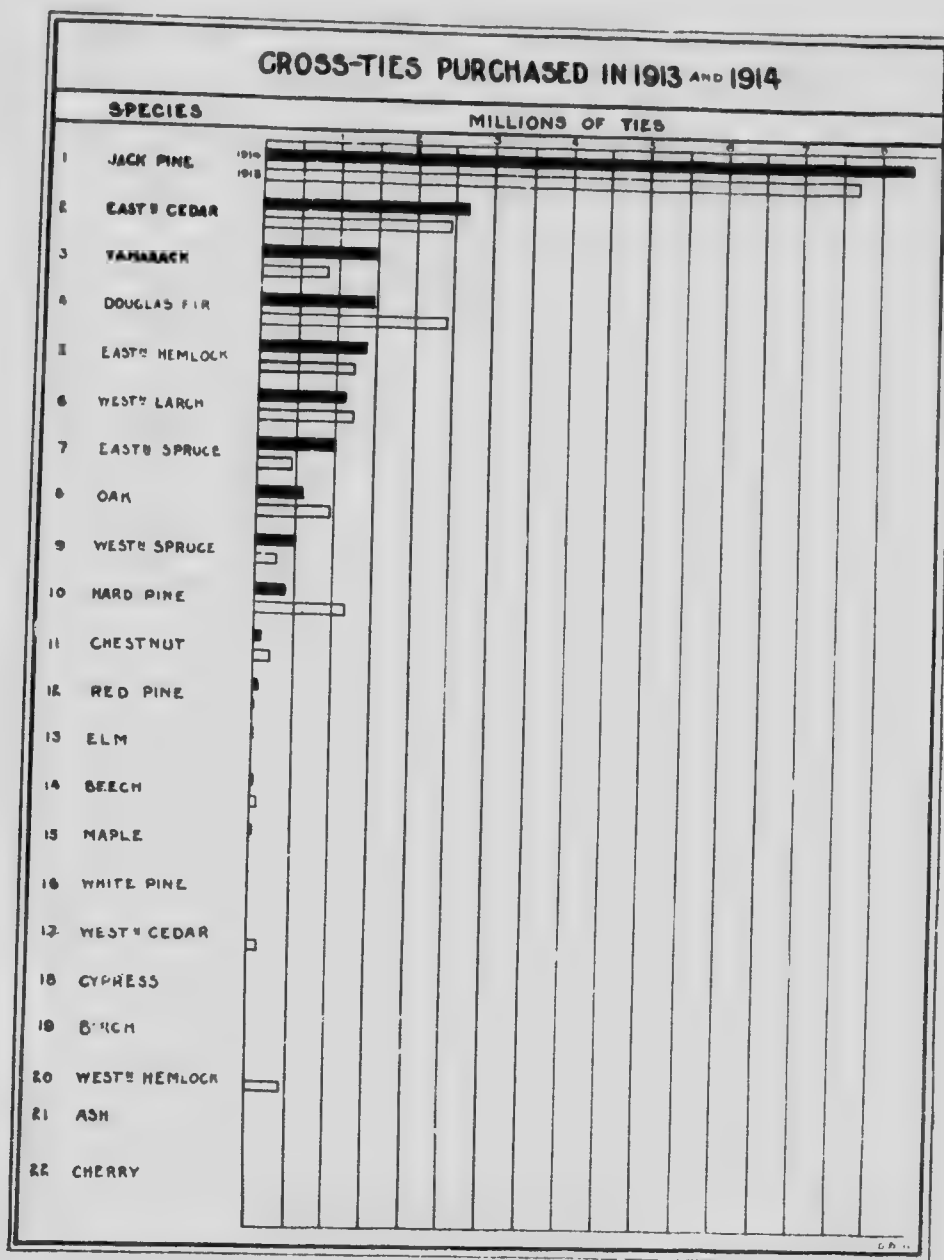
TABLE 3.

CROSS-TIES PURCHASED, 1913 AND 1914, BY KINDS OF WOOD:—Number, Value, Average Value and Per cent Distribution.

Kind of Wood.	1913				1914			
	Number.	Value.	Avg. Val.	Per Cent.	Number.	Value.	Avg. Val.	Per Cent.
		\$	\$ c.			\$	\$ c.	
Total	19,881,714	8,740,849	0.43	100.0	19,403,646	8,664,914	0.45	100.0
Jack Pine.....	7,773,674	3,103,140	0.40	39.1	8,379,064	3,624,151	0.43	43.2
Eastern Cedar.....	2,451,527	1,090,136	0.44	12.3	2,651,319	1,279,100	0.48	13.7
Tamarack.....	866,231	369,666	0.43	4.4	1,507,902	661,717	0.44	7.8
Douglas Fir.....	2,427,100	801,710	0.33	12.2	1,456,388	539,249	0.37	7.5
Hemlock.....	1,199,699	455,662	0.38	6.0	1,390,885	576,440	0.41	7.2
Western Larch.....	1,225,956	636,631	0.52	6.2	1,121,347	459,643	0.41	5.8
Eastern Spruce.....	458,256	151,049	0.33	2.3	1,020,667	379,841	0.37	5.2
Oak.....	978,554	673,244	0.69	4.9	617,449	483,496	0.78	3.2
Western Spruce.....	267,917	70,685	0.54	1.3	547,919	202,234	0.37	2.8
Hard Pine.....	1,138,351	621,032	0.55	5.7	378,983	263,215	0.69	1.9
Chestnut.....	232,179	126,795	0.55	1.2	104,980	69,091	0.66	0.5
Red Pine.....	114,852	52,112	0.45	0.6	81,979	30,923	0.38	0.4
Elm.....	13,674	6,421	0.47	0.1	33,307	27,030	0.81	0.2
Beech.....	96,923	60,552	0.62	0.5	32,637	25,331	0.78	0.2
Maple.....	16,860	14,381	0.85	0.1	22,449	19,995	0.89	0.1
White Pine.....					14,165	6,446	0.46	0.1
Western Cedar.....	115,578	77,328	0.67	0.6	13,817	4,554	0.33	0.1
Cypress.....					13,246	5,873	0.44	0.1
Birch.....	24,736	10,447	0.42	0.1	11,018	5,293	0.48	*
Western Hemlock.....	479,113	148,725	0.31	2.4	4,019	1,246	0.31	*
Ash.....	503	216	0.43	*	106	46	0.43	*
Cherry.....	31	17	0.55	*				

*Less than one-tenth of 1 per cent.

The cross-tie purchases in 1914 showed a slight decrease of 2.4 per cent from those of 1913, while the decrease from 1912 to 1913 was 7 per cent. The diagram inserted in this bulletin shows the purchases increasing steadily up to 1912 when they amounted to over twenty-one million ties.



The greatest decreases from 1913 to 1914 were with the western species, Douglas fir, western larch, cedar and hemlock, and the imported woods such as oak, hard pine, and chestnut. Of the twenty-one woods reported in 1914, eleven showed decreases.

Jack pine makes the most suitable tie material of the cheaper, more abundant woods of Canada. It has headed the list since 1911, when it took the place of white cedar, a more durable wood, but one of which the supply is rapidly becoming exhausted. These two woods have formed the greater part of the ties purchased in past years, and together formed over half the total in 1914.

The average prices paid for cross-ties by the railroads in 1914 showed only a slight increase over 1913. The prices in the last five years have been as follows: 1910, 38 cents; 1911, 39 cents; 1912, 44 cents; 1913, 43 cents; 1914, 45 cents.

The average prices in these tables are based on the cost at the point of purchase and may or may not include long-haul transportation charges. Only in the case of those woods which are used in large quantities can the value given be taken to represent the relative value of the wood.

TABLE 4.

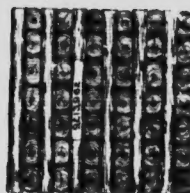
CROSS-TIES PURCHASED, 1913 AND 1914, BY STEAM RAILWAYS BY KINDS OF WOOD:—Number, Value, Average Value and Per cent Distribution.

Kind of Wood.	1913				1914			
	Number.	Value.	Av. Value	Per Cent.	Number.	Value.	Av. Value	Per Cent.
		\$	\$ c.			\$	\$ c.	
Total	19,499,491	8,245,166	0.42	100.0	19,196,298	9,545,957	0.45	100.0
Jack Pine.....	7,706,720	3,070,003	0.40	39.5	8,355,518	3,610,885	0.43	43.5
Eastern Cedar.....	2,305,868	1,013,763	0.44	11.8	2,574,920	1,232,925	0.48	13.4
Tamarack.....	838,999	355,858	0.42	4.3	1,478,512	646,674	0.44	7.7
Douglas Fir.....	2,421,118	799,271	0.33	12.4	1,452,238	537,374	0.37	7.6
Eastern Hemlock.....	1,180,131	448,235	0.38	6.1	1,369,376	566,502	0.41	7.1
Western Larch.....	1,223,444	634,742	0.52	6.3	1,121,347	459,643	0.41	5.8
Eastern Spruce.....	450,256	148,249	0.33	2.3	1,719,249	378,989	0.37	5.3
Oak.....	963,794	660,200	0.69	4.9	602,291	469,828	0.78	3.1
Western Spruce.....	267,917	70,688	0.26	1.4	547,919	202,234	0.37	2.9
Hard Pine.....	1,136,356	619,924	0.55	5.8	356,473	250,614	0.70	1.9
Chestnut.....	232,179	126,795	0.55	1.2	104,980	69,091	0.66	0.5
Red Pine.....	114,852	52,112	0.45	0.6	81,979	30,923	0.38	0.4
Beech.....	96,771	60,400	0.62	0.5	32,637	25,331	0.78	0.2
Elm.....	10,326	4,440	0.85	0.1	28,973	24,627	0.85	0.2
Maple.....	16,799	14,320	0.85	0.1	22,440	19,995	0.89	0.1
White Pine.....					14,165	6,446	0.46	0.1
Western Cedar.....	20,578	6,761	0.33	0.1	12,609	4,035	0.32	0.1
Birch.....	24,736	10,447	0.42	0.1	11,013	5,293	0.48	0.1
Cypress.....					5,430	2,356	0.43	*
Western Hemlock.....	479,113	148,725	0.31	2.5	4,019	1,246	0.31	*
Ash.....	503	216	0.43	*	106	46	0.43	*
Cherry.....	31	17	0.55	*				

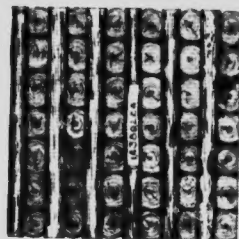
*Less than one-tenth of 1 per cent.

Gross-trees Purchased in Canada During The Past Five Years (1910-1914)

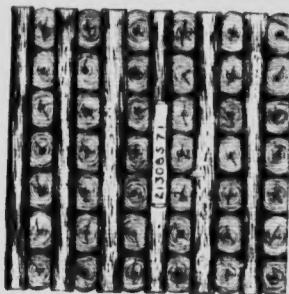
1910



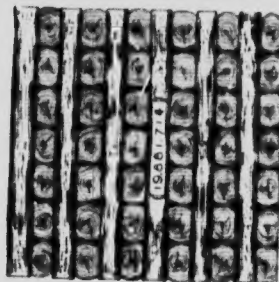
1910



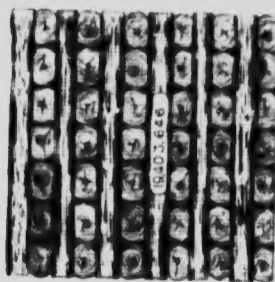
1911



1912



1913



1914

In June, 1914, there were in Canada about 38,000 miles of steam railway right of way. On over 32,000 miles of this trains were in actual operation, and on the remainder ties at least were laid. The steam roads purchased in that year 19,196,208 ties, being about 500 ties to the mile. A large proportion of these ties were used for new construction at the rate of about 3,000 ties to the mile, and the remainder for maintenance of established lines.

These companies paid an average of 45 cents each for their ties, as compared to 58 cents in the case of the electric roads. The steam railways, with 98.9 per cent of the total for 1914, purchased all the ties of western larch, western spruce, chestnut, red pine, beech, maple, white pine, and birch.

TABLE 5.

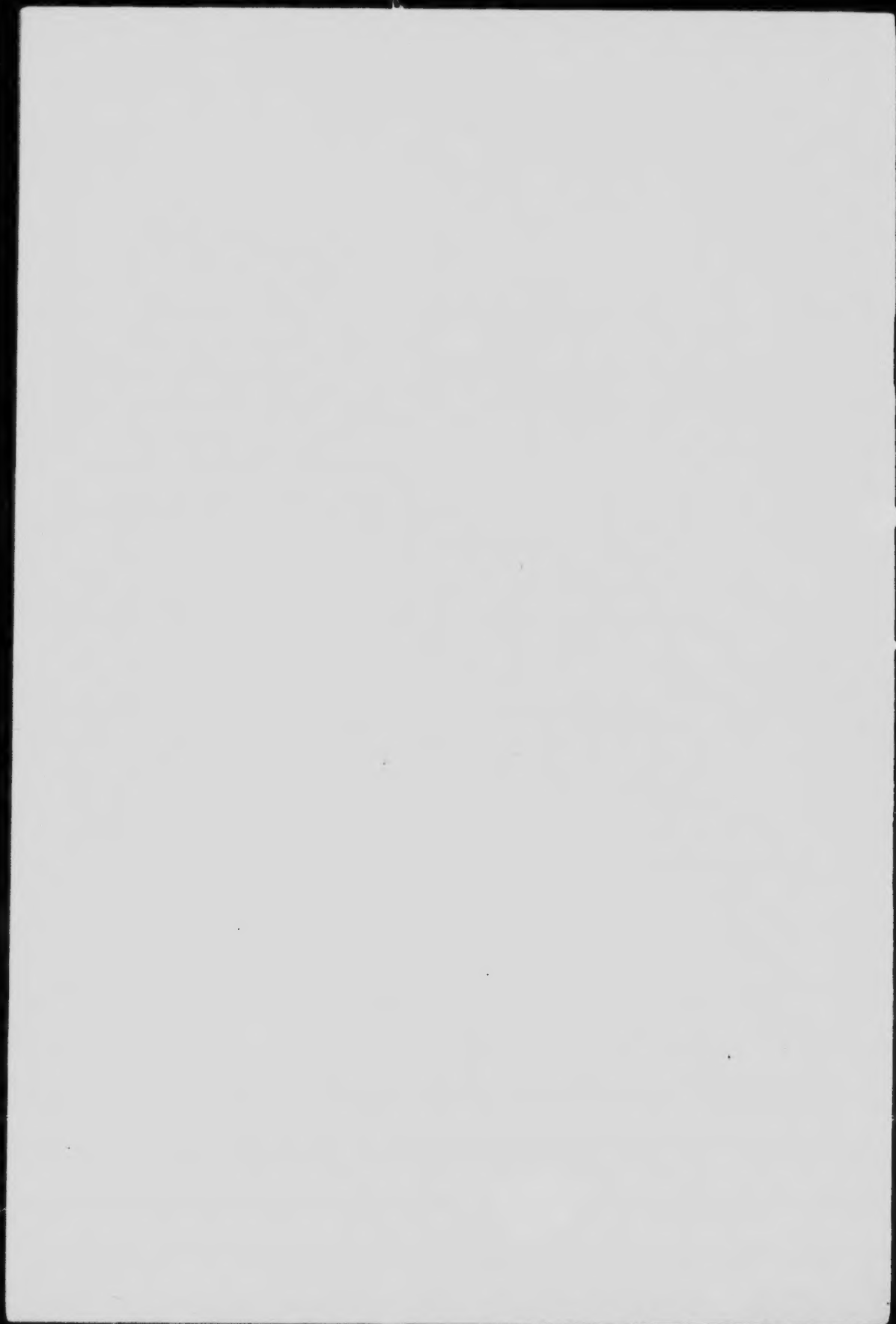
CROSS-TIES PURCHASED, 1913 AND 1914, BY ELECTRIC RAILWAYS, BY KINDS OF WOOD:—Number, Total Value, Average Value and Per cent Distribution.

Kind of Wood.	1913				1914			
	Number.	Value.	Av. Value	Per Cent.	Number.	Value.	Av. Value	Per Cent.
		\$	\$ c.			\$	\$ c.	
Total	391,223	225,088	0.58	100.0	207,438	119,857	0.58	100.0
Eastern Cedar.....	145,659	76,673	0.63	37.2	76,399	46,175	0.60	36.8
Tamarack.....	27,232	13,808	0.51	7.0	29,399	15,043	0.51	14.2
Jack Pine.....	66,954	33,137	0.49	17.1	23,546	13,266	0.56	11.3
Hard Pine.....	1,995	1,108	0.55	0.5	22,510	12,601	0.56	10.8
Eastern Hemlock.....	19,563	7,427	0.38	5.0	21,509	9,938	0.46	10.4
Oak.....	14,760	13,044	0.88	3.8	15,158	13,668	0.90	7.3
Cypress.....					7,816	3,517	0.45	3.8
Elm.....	3,348	1,981	0.59	0.9	4,334	2,403	0.55	2.1
Douglas Fir.....	5,982	2,439	0.41	1.5	4,150	1,875	0.45	2.0
Eastern Spruce.....	8,000	2,800	0.35	2.0	1,418	852	0.60	0.7
Western Cedar.....	95,000	70,567	0.74	24.3	1,208	519	0.43	0.6
Western Larch.....	2,512	1,889	0.75	0.6				
Beech.....	152	152	1.00	*				
Maple.....	61	61	1.00	*				

*Less than one-tenth of 1 per cent.

The electric railways in Canada purchased 207,438 cross-ties, or about 1.1 per cent of the total. These roads had a mileage of 1,561 in June, 1914, and therefore purchased ties at the rate of 133 per mile. These purchases were mostly used for renewals, for which the demand is not so heavy as in the case of steam railroads.

The total number in this case is a decrease of 47 per cent from 1913, while the average price per tie is the same. The greatest decreases were with western and eastern cedar and jack pine. Eleven woods were reported in 1914, and fifteen in 1913, western larch, beech, maple, and white pine being dropped from the list.



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Annual Reports—Director of Forestry—1906-6-7-8 and 1913 inclusive.

- Bulletin 1. Tree Planting on the Prairies.
 " 6. Forest Products of Canada, 1908.
 " 10. The Farmer's Plantation.
 " 11. Forest Products of Canada, 1909: Lumber, Square Timber, Lath and Shingles.
 " 12. Forest Products of Canada, 1909: Pulpwood.
 " 14. Forest Products of Canada, 1909: Cross-ties Purchased.
 " 16. Forest Products of Canada, 1909.
 (Being Bulletins 11, 12, 13, 14, 19 and 20.) French edition only.
 " 16. Forest Fires and Railways.
 " 17. Timber Conditions on the Proposed Route of the Hudson Bay Railway.
 " 18. The Rocky Mountains Forest Reserve.
 " 23. Forest Products of Canada, 1910: Cross-ties.
 " 23. Forest Products of Canada, 1910: Timber Used in Mining Operations.
 " 24. Wood-using Industries of Canada, 1910: Agricultural Implements and Vehicles, Furniture and Cars and Veneer.
 " 27. Forest Products of Canada, 1910: Cooperage.
 " 28. Forest Products of Canada, 1910.
 (Being Bulletins 21, 22, 23, 24, 25, 26 and 27.) French edition only.
 " 29. Timber Conditions in the Lesser Slave Lake Region.
 " 32. The Turtle Mountain Forest Reserve.
 " 31. Forest Conditions in the Rocky Mountains Forest Reserve.
 " 34. Forest Products of Canada, 1911: Lumber, Square Timber, Lath and Shingles.
 " 35. Forest Products of Canada, 1911: Poles and Cross-ties.
 " 36. Wood-using Industries of Ontario.
 " 37. Forest Products of Canada, 1911.
 (Being Bulletins 30, 31, 34 and 35.)
 " 39. Forest Products of Canada, 1912: Poles and Ties.
 " 40. Forest Products of Canada, 1912: Lumber, Square Timber, Lath and Shingles.
 " 42. Co-operative Forest Fire Protection.
 " 43. Forest Products of Canada, 1912 (Being Bulletins 38, 39 and 40.)
 " 44. Wood-using Industries of the Maritime Provinces.
 " 45. Timber and Soil Conditions in Southeastern Manitoba.
 " 46. Forest Products of Canada, 1913: Pulpwood Consumption.
 " 47. Forest Products of Canada, 1913: Poles and Cross-ties.
 " 48. Forest Products of Canada, 1913: Lumber, Lath and Shingles.
 " 49. Treated Wood-block Paving.
 " 50. Wood-using Industries of the Prairie Provinces.
 " 51. Game Preservation in the Rocky Mountains Forest Reserve.
 " 52. Forest Products of Canada 1913. (Being Bulletins 46, 47 and 48.)
 " 54. Forest Products of Canada 1914: Pulpwood.
 Circular 5. Planning a Tree Plantation for a Prairie Homestead.
 " 6. Preservative Treatment of Fence-posts.
 " 7. Manitoba a Forest Province.
 " 8. The Forest Products Laboratories.
 " 9. Chemical Methods for Utilizing Wood Wastes.
 " 10. The Care of the Woodlot.
 " 11. The Relation of Forestry to the Development of the Country.